



US005220359A

United States Patent [19][11] **Patent Number:** **5,220,359****Roffman**[45] **Date of Patent:** * **Jun. 15, 1993**[54] **LENS DESIGN METHOD AND RESULTING ASPHERIC LENS**[75] **Inventor:** **Jeffrey H. Roffman**, Jacksonville, Fla.[73] **Assignee:** **Johnson & Johnson Vision Products, Inc.**, Jacksonville, Fla.[*] **Notice:** The portion of the term of this patent subsequent to Sep. 24, 2008 has been disclaimed.[21] **Appl. No.:** **728,421**[22] **Filed:** **Jul. 11, 1991****Related U.S. Application Data**

[63] Continuation-in-part of Ser. No. 557,261, Jul. 24, 1990, Pat. No. 5,050,981.

[51] **Int. Cl.⁵** **G02C 7/04**[52] **U.S. Cl.** **351/177; 351/160 R; 351/161**[58] **Field of Search** **351/177, 160 R, 160 H, 351/161, 162**[56] **References Cited****U.S. PATENT DOCUMENTS**

3,482,906	12/1969	Volk	351/160 R
4,199,231	4/1980	Evans	351/160 H
5,050,981	9/1991	Roffman	351/177

Primary Examiner—Scott J. Sugarman
Attorney, Agent, or Firm—Joel R. Petrow[57] **ABSTRACT**

An aspheric lens for providing improved vision and a method for generating such a lens is described. The lens provides a sharp image focus while minimizing image aberrations. The method utilizes ray tracing techniques in conjunction with Modulation Transfer functions to accurately account for the total corrective lens-eye system. The lens may be in the form of a contact lens, an intraocular lens, a natural lens or a spectacle lens, and is suitable for correcting myopia, presbyopia, astigmatism and other focusing problems. The lens is characterized by a hyperbolic or parabolic surface which functions to reduce spherical aberrations and minimize the retinal image spot size.

5 Claims, 9 Drawing Sheets